

Instant Medical History

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Abstract

We introduce a knowledge-based patient driven screening expert system used in an outpatient family practice for 10,000 consecutive visits. The nurse hands the patient a laptop computer. Using knowledge-based questioning, subjective complaints are collected directly from the patient. The questions are response driven. Simultaneous analysis of the pattern of answering also determines the direction of the questioning. If indicated by the patient's answers, standardized published self-rating and self-assessment scales from the medical literature are administered totally unseen by the patient. The patient's complaints are succinctly presented to the physician as he enters the exam room. The physician can usually glance at the positive answers and graphically depicted scales and arrive at a working clinical impression in a few seconds before he begins his interview. Both he and the patient are totally focused on the problem at hand. Limitless potential for enhancing physician productivity is evoked.

Sir William Osler once said, "Talk to a patient long enough and he will tell you what is wrong with him." Ninety percent of diagnoses are made on the basis of the subjective history, five percent are made on the basis of the physical examination, and five percent are made on the basis of laboratory and X-ray studies. today's time-conscious medical practice, few physicians can ask every question that they would like to ask every patient. The standard of care requires that a complete history be gathered and documented on all patients.

Instant Medical History is a patient-driven computerized medical history expert system. It is designed for use while the patient is waiting to see the physician. The nurse or receptionist selects a symptom or any or all organ systems for review. The questions that follow are those the physician would normally ask in a live patient interview. Instant Medical History has extensive branching technology that uses the patient's responses to each question to initiate additional questions that become more

specific. For example, in the "URI and Sinus" if the patient indicates that he has a fever, then he is asked several questions about the fever and each of these are followed up. These answers are translated into medical terminology to become the starting point for the physician who can usually glance at the output of medical terminology and have a correct diagnosis in mind. The physician has time to get that extra bit of information he needs to make a confident diagnosis -- before he even sees the patient!

For a routine office visit, Instant Medical History reviews the pertinent organ system or group of organ systems indicated by the nurse. When the patient indicates a complaint, the program will ask a set of secondary questions about the illness. Totally unseen by the patient are standardized self-rating scales and psychological tests embedded in the program. These tests are automatically administered if the patient answers positively to trigger questions or the pattern of answers is outside the parameters set in the system utilities. These tests are scored and the results are printed in numeric and graphical form for the physician. For instance, in the Review of Systems section "Health Habits," a patient who drinks alcohol will automatically be administered the CAGE Questionnaire. If he answers positively to any of the CAGE (Cut down, Annoyed, feel Guilty, Eye opener) questions, then a MAST, Michigan Alcohol Screening Test, is also administered. Because that title does not appear on the screen, the patients believe that these are simply the next questions in a series and that everyone gets the same questions. Thus, the patient is not embarrassed by being pre-labeled an alcoholic. The physician has obtained sensitive information about the patient's problem that both the patient and the doctor might feel uncomfortable discussing. Since the answers came directly from the patient, the patient is inclined to be more receptive to the physician's diagnosis of alcoholism.

Instant Medical History makes the office encounter less stressful for the patient so the doctor can concentrate on the most important task at hand, treatment.